

THE
AMATEUR'S MANUAL,
OR
Specific Mating
OF
THOROUGH-BRED FOWLS.

BY
I. K. FELCH,
NATICK, MASS.

Price 75 Cents.

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NOTICE.

The generous support of the Poultry Fraternity extended to the **MANUAL** and the constant entreaty to specifically mate those breeds not mentioned in the **MANUAL**, has led me to put in Press

THE Fancier's Mating

OF

Fowls, Turkey, Geese and Duck,

being a second volume to the **AMATEURS MANUAL**, and to say that I have the assistance of **J. V. RICKNEILL** in the Turkey and aquatic divisions, is enough to ensure

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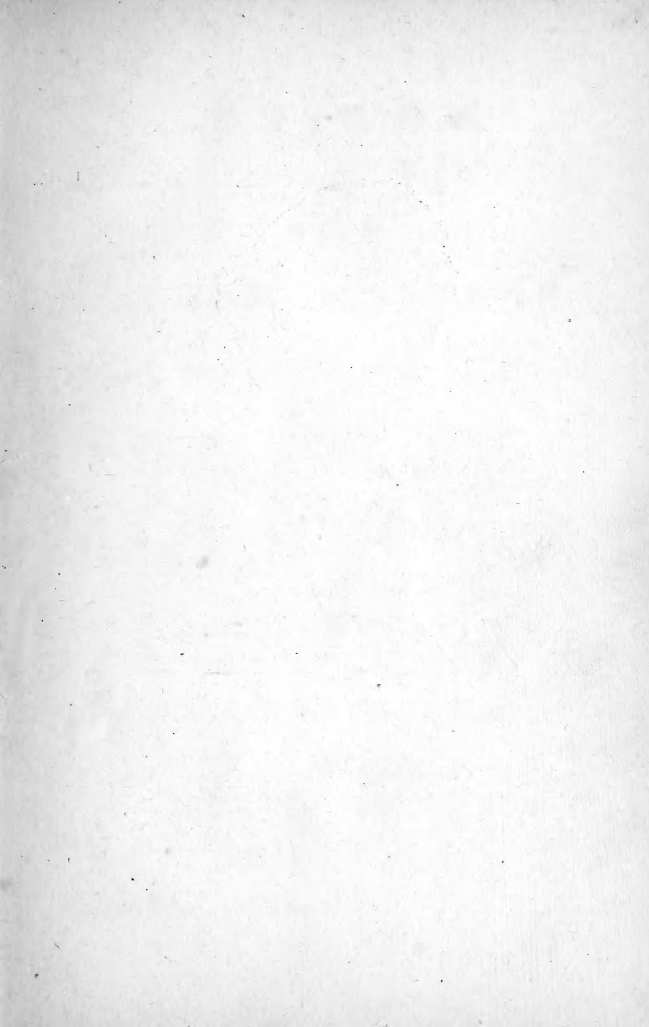
Thorough-breeds for Practical Use,

with hints to Amateurs how to breed to a strain to secure form and color.

The book consists in contents of my Essay, before the State Board of Agriculture, which is in itself, a handbook for the Farmer, Poulterer and Amateur, with such added information as will be of interest. Also, the discussions upon the same by the board which is of practical value, and will be ready for distribution in Oct., 1877. Price 50 cents.

I. K. FELCH,

Natick, Mass.





Fraternally Yours
W. K. Felch

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PREFACE.

IN offering this, my first work upon the mating of thorough-bred fowls, I can but feel, while I offer no new mode for the consideration of those experienced in the business, that its teachings may help the amateur to avoid many of the disappointments and difficulties that beset every one who works out the problem of breeding with no help but experience.

Most of the writers upon the subject herein presented have treated it in general terms, which conveyed very few practical ideas to the mind of the inexperienced breeder. The great need of the inexperienced is something of a specific nature; and this has led me to present, in this little work, rules that can be applied in a specific manner. These rules, I believe, can be applied to all the breeds, as well as to those herein mentioned.

Honestly made and truthfully recorded experiments are of far more value and are better understood by the amateur, than any theory, however forcibly presented. In these times of rapid improvement

and high prices for thorough-bred stock, he needs all the help the older breeders can give, to shield him from the many mistakes in breeding. In this spirit I offer this, which is, in a large degree, my own experience, hoping that the exceptions to the rules for mating which I offer may prove no greater in number than has been found in other advisory works of this character.

Should this work be appreciated to that degree which will warrant the taking up of all the other varieties in a like manner, in connection with other subjects of interest in poultry-breeding, I shall do so. Hoping that my efforts so far may be of some value to the fraternity, I am, very respectfully,

I. K. FELCH.

THE AMATEUR'S MANUAL:
OR,
SPECIFIC MATING
OF
THOROUGH-BRED FOWLS.

PART FIRST.

THE word "thorough-bred," Webster defines : Bred from the best blood ; completely bred ; accomplished.

With the above before us, we are led to assert that we have pure blood, and absolutely thorough-bred fowls—other writers to the contrary notwithstanding.

No one denies that we have thorough-bred cattle, which, by judicious coupling, have been bred to a uniform type that is recognized at a glance.

We have, for instance, the short-horn cattle, in color any shade found in red and white ; the Devon, which in its purity is confined to dark red ; the Jersey, in its varied shades found in fawn, white, and

black ; and the Ayrshire, in any and all shades of color. Now have we not in the Light Brahma, Dark Brahma, Cochin, Hamburg, Houdan, Game, Spanish, and Dorking, fowls as deserving the title of thorough-bred, as any of the cattle we have named ?

Have they not been " Bred from the best blood " — completely bred — and does any one deny that the breeding has been accomplished ?

In the cattle there is quite a diversity in color, but the fowls we have named will, even in color, produce their progeny in one uniform type, the family likeness more completely defined than is seen in the cattle, yet the same writers asserting we have no thorough-bred fowls, maintain that we have thorough-bred cattle.

It is our purpose, in this treatise, to chronicle some part of our experience, describing, as far as we can, a perfect sire and dam, and presenting our views of mating for breeding fowls, claiming them to be thorough-bred.

Practical knowledge becomes, in one sense, science, and should be disseminated, and no theory that does not stand the test of experiment be valued or promulgated.

The Rev. W. H. H. Murray truly says, " We strike

the bottom facts that underlie all breeding, when we read this sentence: 'Every seed should bring forth after its kind.'"

"Find the highest type to perform the paternal act, and we can repeat the typical creation. Find two parents that represent the original idea in any organism, and we can repeat the original idea."

These and kindred expressions fire the thoughtful breeder to his very centre, and he searches to find out what constitutes a perfect sire, and what are the requisites of a perfect dam, that from the pair he may produce his ideal of perfection, combining health, beauty, and utility in the offspring.

The sire should have a sound constitution, perfect color, and symmetry (that form of structure produced by the harmonious blending of perfectly formed parts, as described by the standard). He should be mild and courteous to his dames, showing no lack of procreative vigor; courageous, even pugnacious, in the defence of his harem.

It is not only necessary that he possess all these individual qualities, but he should have a record, or pedigree, that shows all his breeding qualities to be the result of ancestral blood and perfect breeding. Thus we have a really perfect sire. Such males,

coming from a line of like sires, invariably stamp their progeny in the likeness of their own personality. Experience teaches that the sire, in his line, has greater influence in determining the color and form of structure than the dams.

The fact that chickens generally favor the grand-sire, makes it all important that the male line should not be broken, and that the sire, should be typical in symmetry and color.

Before speaking of the color qualification, and its influence in mating, we will submit the following, proved by several experiments, that our deductions may be better understood.

It is asserted by pigeon fanciers, that if a pigeon, white in plumage, beak, and toe-nails (it matters not from what colored ancestors it may have been bred), will, if it breed at all, breed true to white. An Albino Spanish fowl, if pure white in plumage, beak, and legs, will ever after breed true to white.

We produced in 1862, a pair of white sports from Golden Spangled Hamburgs. The male had bluish-white toes; the progeny came one third Golden Spangled in color, while a cockerel from the pair, in all respects white, bred to his dam and to his sisters, produced all white chicks.

Generally all sports, so called, are white in color, or we think a better expression is, that they are void of color.

By causes which cannot be explained, the function of color fails to furnish its quota to the chicken's organism, therefore the chickens must be considered a new type, and lost to the breed, for they cannot be expected to transmit a color which they never inherited.

We admire a pure white back and undercolor in a Light Brahma pullet, with a clearly defined stripe in the hackle. But if successive matings of sire and dam, both being white in undercolor, are indulged in, the result will be faded, and eventually white birds. A plumage like that of the Light Brahma, made up of white and black, cannot be exempt from the shadings of the one color into the other with which it is associated; and in this breed, the standard wisely acknowledges both white and bluish undercolor, and gives no preference to either shade in adjudicating for premiums.

This position is a just one, and judges should not deviate from it, for without this dark undercolor in the sire we cannot sustain the breed.

It matters not what our likes or dislikes are, or

may be, nor how we may breed for our own amusement; yet, in all public expressions, we should be careful to present each breed in its true light, and all truthfully-recorded experiments become of much value in counteracting whatever false ideas may appear in print from time to time.

Experience teaches us that the whole tendency of breeding is to breed lighter in color. We have only to call to mind the Light Brahmas of the past, to see how all of the strains have grown lighter in color. We all know that the original birds were dark in undercolor, and that light specimens, then, were the exception. We know, also, that a flock colonized and left to themselves, grow lighter in color, and finally become nearly or quite white.

In view of these facts, we say: all males of faded light color in plumage should be killed for poultry. In no case should they be used as breeders, for they are never good producers of males, and, although they may for a season beget good females, these in their turn will revert in their breeding to their faulty sires.

Why try to utilize these males, and expect them to perform a work that is impossible. They cannot be expected to produce color when they utterly fail in that quality.

Yet, in the face of all this experience, we see breeders using, year after year, white-necked Light Brahma, faded light-colored Plymouth-Rock, Light Buff Cochin, splashed-breasted, bronze-thighed Partridge Cochin sires, expecting, by the aid of counter-acting influences in the dams, to reach perfection in color.

Should all the breeders of Plymouth Rocks, now in the infancy of the breed, step out boldly, using none but perfect-colored sires, or those darker in color, they would perfect the color of their breed, which they will never do by mating extremes, as is now the universal rule.

Why do these breeders forget these facts, "That every seed should bring forth after its kind;" that the sire, in his line, has the greatest influence in determining the color of the offspring, and that there is a loss in color by breeding?

Waste is written on every thing. We are compelled to establish a sinking fund in all operations in life; life itself working on that plan.

In all penciled or barred plumage, we find the ground-color to be the lighter in shade; and, as breeding-strength fails (as it may by severe in-and-in breeding, producing debility or a weakened con-

stitution) we find the progeny reverting to this lighter or ground-color. Those of white losing their brilliancy of color, black becoming mixed with white; Light Brahmas growing pale, and even white, in the neck, tail and wings, and finally pure white; Buff Cochins to pale buff, white in flights and tail; Partridge Cochins to clay-colored breasts, not penciled, and males buff-mottled in breast; the Golden-Spangled Cock, to reddish-brown breasts, with white appearing along the lower line of the body; therefore, good color not only requires the best mating of blood, but is also dependent upon the health of the parent-birds while breeding.

Nine-tenths of all the blunders, in mating for breeding, occur in

COLOR,

and a corresponding number of all the breeders, in mating their stock, fail to consider that color is the especial work of the sire.

To be sure, good care and generous feed, help most materially; for feathers, like grass, grow most luxuriantly under favorable circumstances. Poor feed, poor plumage. It starves alike with the body. This can well be remembered by those who expect

they have done their whole duty, when they buy nice stock and expect it to produce premium chickens.

The color of the hackle of a sire is to be considered, especially as it is to influence and control the hackles of his sons, for the hackle is purely male plumage, and the beauty of his sex. While the color of his neck, before putting on this garb, will determine his breeding-strength in the color of his pullets. A male that grows up black in neck, to be replaced or covered by a white hackle, having a yellow beak, void of a black stripe, will, as a rule, beget pullets dark and many quite black and smutty in the neck, and male chicks white in the hackle, like himself; while a male with dark beak, very dark neck and back, as he becomes a cockerel, having a royal rich black striped hackle, will generally beget both sexes too dark, if anything like standard females are mated to him. But such males are very valuable in restoring the progeny of hens that are light in color of neck, wings and tails; thus utilizing hens that must otherwise go to the block.

The reader may ask why recommend the mating of very dark sires to light females, and condemn matings made "*vice versa*."

In answer, we will say :—

1. — The tendency is always to breed lighter in color, and the sire fails in this respect.

2. — The sire, in his line, has the greatest control of the color of the offspring.

3. — Chickens favor more strongly the grandsire.

4. — A white-necked sire will beget smutty-necked females, which, in turn, revert to their pale sire, and if a like sire be mated to the rule of all white undercolor, the same having been the breeding of the females, they will produce progeny all pale and faulty in color.

Experience teaches that cockerels with dark fine hackles, bluish undercolor, and black wing-flights and tail, are the progeny of perfect or dark-plumaged sires. So universally true is this, that it may be accepted as a rule.

Our strongest argument in favor of the dark sire and rejection of the pale one is, that experience says it is best, and that is our law.

The male of all breeds whose plumage is made up of black and white, or is parti-colored, owing to their profusion of hackle and tail, compared with the females of their breed, appear much lighter in color ;

consequently they are darker in breeding functions than they appear ; and the first point an experienced breeder considers, in Penciled and Spangled Hamburgs and Plymouth Rocks, is the breast, bars of the wings, and color of beak, before considering the general surface color, knowing that if dark or light in these points, that such will be the breeding and influence on the progeny.

Many find fault with the standard, saying, that to mate specimens by it is to make a failure in breeding.

The fault is not so much in the standard as in our failure to consider the difference in the plumage of the sexes, when we apply the standard.

Size in the sire is of little importance, if he be fully up to the medium weight of his race. An overgrown sire is useless as a breeder. The one just above the average, vigorous and healthy, will beget one hundred chicks weighing more pounds than will the overgrown male of the same brood.

Size and weight should be considered in the light of the general average. The best sire is the one that shows the least difference in the weight of the individuals of his progeny.

In the small breeds we may with safety choose our sires above the average weight, for it is a singular fact, that in the largest specimens of the Asiatics and the smallest specimens of the smaller breeds will be found the most faulty birds.

THE DAM.

CONSTITUTION, prolific-laying, size, and color, are important, and are to be preferred in the order named. In addition to this, a good record of blood and egg-productive merit, in her ancestry, are to be considered in selecting dams for any breed.

A sound constitution and perfect health while breeding, has much to do with producing prolific-laying stock; also with the lustre and brilliancy of self-colors.

The dam produces the material for the chicken-structure; the sire the life of that structure.

The egg is to the chicken what the endosperm is to plant life—a store-house containing the requisites to produce a perfect chicken-structure. The life-germ that is to absorb all this, being thereby built up into independent life, is imparted by the sire.

Unlike the animal kingdom, the hen performs her work as independently and completely without the male, as by copulation with him.

The egg-passage, running from the egg sac to the vent, is a receptacle, a work house, in which the se-

cretions of both dam and sire are made up into packages called eggs. In this work-room impregnation takes place. The ova, when grown to a certain size burst their sacks and are expelled into this oviduct there to receive the spermatozoa of the male, and in their passage through become encased in the albumen, the lining and shell in turn, and expelled at the vent, perfect eggs.

There are in this passage, while a hen is in a healthy laying condition, from four to six eggs in their different stages of development; the last two nearest the vent being beyond the influence of the male, if the hen has not been previously exposed.

All the secretions deposited in the egg-passage, must find an escape at the vent, for nothing goes back from it into the dam's organism by absorption, as is asserted by some writers.

We have seen cases where, by means of a cartilaginous circle about the vent, fowls have been prevented from laying their eggs, and in such cases the eggs in the egg-passage will form one over the other, till death is caused by inward pressure; and we have before now taken from the carcass a mass as large as a six-pound cannon-shot, cooked solid by fever heat. We have taken from the egg-passage of a turkey,

five eggs, completely formed and shelled, completely cooked by inflammation.

The following experiments seem to prove that the spermatozoa will live doing its work of impregnation, in this egg-passage, only about ten days, and we may say that the dam is pregnant for that length of time.

We placed a hen that had hatched and reared a brood of chicks, without exposure, with a cock for three hours, then isolated her in a coop by herself. The first two eggs she laid in the next forty eight hours, were not fertile; eight of the nine laid in the ten days thereafter were fertile. Those laid after that time were not fertile.

We placed a hen by herself that had been exposed while rearing her brood, and seven out of the eight eggs laid during the ten days afterwards were fertile, but all eggs laid after that time were not.

We took a hen that had just finished her litter, wanting to incubate, and exposed her to the male for three days, then cooped her by herself. None of her eggs were fertile. In this case we take it for granted the incubating fever had not abated so as to admit of an effective copulation.

These experiments, which we can vouch for, seem to indicate that if females are cooped ten days before

saving the eggs, that it will protect the breeder in the purity of the blood of the chickens; but, as some believe that the whole litter of eggs are effected, it is the better plan, in changing hens from one male to another, to do it at the close of a litter of eggs; but we are satisfied that after the ~~first~~ ^{5th} egg, after the change is made, the chicks would in nineteen cases in twenty be the progeny of the associate sire.

We believe the longer the spermatozoa remains in the egg-passage, without being appropriated, the more sluggish it becomes, and that the fresh semen, being more active in its animalcule life, secures the impregnation of the eggs. This is speculation, but, nevertheless, in accordance with our experience.

If examined by the microscope, there will be found no organic difference in the germ found in the yolk of the egg, and that of the freshly-ejected spermatozoa, both resembling a polywog, and there is no chance, as the author of "Secrets in Fowl-Breeding" asserts, for the dam to be contaminated by a chance-copulation with a male not of her breed.

There can be no grounds for belief, that a dam copulating with a sire of a different breed has lost her purity of blood, and that we can never afterwards breed thorough-bred stock from her. We do not

wonder, if he believes this, that he asserts, in the commencement of his work, that we have no absolutely thorough-bred fowls.

There can be no contamination of the blood or breeding of the dam from this cause, unless it can be proved that there is a union of arterial circulation between the fetus or chick and the dam. This is beyond proof, for there is no circulation in the egg till incubation takes place, and this is carried on independent of the dam, and may be a thousand miles away. Again, we have cases on record where an egg laid thirty-three hours after copulation hatched. It is clearly shown that the two eggs nearest to the vent are generally past impregnation; but, in this case, the second one was reached, and, owing to the time it takes to develop an egg, the vital germ must have been taken into the egg at once, which precludes altogether the idea that the dam becomes injured in her blood by absorption through the act of copulation out of her breed.

We are surprised to see men foreshadowing this belief in their advertisements, for surely breeders of experience cannot believe it, and must look upon it as advancing a false theory, which does the amateur no good.

Size in the dam is all-important if great weight in the progeny is the desideratum; for, as we have shown, the dam furnishes the structure, and must thereby control the size to a much greater extent than the sire.

Secure dams of good average size. If they are to be used to vitalize some other strain, it is necessary that they be coarse in structure, and large in bone, for these qualities become toned down by in-breeding. They should also be dark in plumage to counteract the loss of color in breeding. In support of the above, we will say that we mated two large hens to a cockerel weighing less than nine pounds, and which, as a cock, did not reach twelve pounds till three years old, and then only when exceedingly fat. Not one of his progeny, at eight months old, weighed less than nine pounds, and many of them twelve and one half pounds. Again, we mated a cock of ten and one half pounds to ten-pound hens, and the result was, at ten months old the entire male progeny was larger than the sire, many of the cockerels weighing twelve and one half pounds before twelve months old. Yet, for all this, we would caution breeders not to go to extremes in this direction.

The larger the bone and structure, the longer it will take to mature the specimen.

The smaller the bone and offal, in comparison to weight, the quicker will they mature. As a rule such chickens are the most profitable as poultry, giving better returns for food consumed. They lay earlier in life, and such are always the most prolific layers through life.

These early-maturing, compact close feathered birds, generally win the early exhibitions; while those of larger bone and more fluffy plumage, requiring more time to mature them, are more successful in the show-pen in the winter months.

Both these types the breeder of Asiatics are compelled to breed, for both have their admirers. The poulterer and those of a practical turn of mind preferring the former, and many of the fanciers the latter.

Our own idea, and we believe the true position, is to take the happy medium, and advance in size no faster than we can secure with it the full merit of egg-production and symmetry.

BREAST AND BODY.

THESE are of more importance, especially in the form of structure, for practical use, and in the exhibition-pen, than many at first conceive.

A specimen, perfect in these respects, has an increased chance to win over one failing in these points, for a failure of two points in form of breast and body, will affect the symmetry of the specimen three points more, making in the aggregate five points; while to fail even four points in the hackle (and such a specimen is seldom exhibited, since it has no associate influence), is no worse for the specimen than two points as described above—a hint breeders may well heed in selecting their breeding-stock or specimens for exhibition.

How few specimens we see that fill literally the requirements of the standard, “breast full, broad, round, carried well forward, body broad and deep, which, to secure this shape in breast, must be rounded at the side, giving the round side-sweep which is admired wherever seen.

All who saw the Light Brahma Cock Leo, 2776, exhibited at Lowell by Damon & Marshall, or the Dark Brahma Cockerel exhibited at Boston by Mr. Waterhouse, in the winter of 1876-77 will appreciate this merit.

This formation gives better form and carriage of wings, finer symmetry and more grace of carriage; yet we see many birds used by breeders failing in all this, and their place usurped by others whose only excellence is a good neck-hackle.—A word to the wise is sufficient.

MATING OF THE SEXES.

IN relation to color in the breeds, we consider first the Light Brahmas, for it is with this breed we have worked out most of our experience, and it comes easier for us to employ it in illustration; but in all other breeds, so far as they have been as well established in blood, and bred upon the same plan or rule, we find the same results.

We can give no rule to be applied to all breeds unless all breeders have established the rule of breeding one line of sires, preserving it unbroken, and breeding all new blood introduced back to sires of the strain, basing all on the law of in-breeding. We expect some may mate by our advice as they understand it, and fail; but it will not be the fault of the rule, but the fault of the previous breeding of the stock.

Before going further we will explain what we term "The Apron." It is the feathers that grow from the shoulder joints along the arm of the wing and cover the back entirely at the neck, spreading laterally

towards the tail, helping to form the flatness of the back between the shoulders, and are covered by the hackle of the bird when standing erect. In Light Brahmas it is either black, black and white, or white; and either must be tolerated in the breed. The wing and neck are made up of black and white, and the apron is the connecting link of these two sections; and where a pure white apron is found, generally the specimen fails in color of wing or is short in the hackle-feathers; yet for all this, some judges will cut a color other than white in this locality; still we prefer to consider it in the same spirit as we do the undercolor of the back, unless the apron has more than one half black feathers, then cut as a defect. With this explanation we would mate as follows. —

LIGHT BRAHMAS.

MATING No. 1. — Cockerel in form and color as described by the Standard, weighing from ten and one half to eleven and one quarter pounds, with stripe in hackle-feathers, the black commencing well up and running in a narrow clear black stripe to the point, dark beak, apron and undercolor and deep bay eyes.

Hens weighing from nine to ten pounds; in form and color as described by the Standard, and white in apron and undercolor, with bay eyes.

This I think none will deny is mating by the Standard, and we call it the "ne plus ultra" of all Light Brahmas for the male line of one's strain.

MATING No. 2. — Cocks with wide black stripe in hackle and light stripes discernible in saddle near the tail, white in apron and undercolor, medium dark beak, and bay eyes, in other re-

spects as described by Standard, weighing from eleven and one half to twelve and one half pounds.

Pullets in form and color as described by the Standard, being dark in the apron and bluish at shoulder, shading to white towards the tan in the undercolor, selecting them well up in size. Such a mating will produce females that should please all. This and the mating No. 1 we term perfect in all respects.

MATING NO. 3. — Mate males with hackles that have a good fair black stripe, but edge of feathers free from any smoky tinge, white undercolor and apron, wing flights about one half black, lesser coverlets of tail white, coverlets white laced.

To females that have neck nearly black or what is called smutty, the white edge of feather smoky edged or entirely wanting, with black apron and undercolor. Of course in all these matings for color, the form of structure is taken for granted to be as near the Standard as we can find it; the males to be of standard weight and the females well up to or beyond the weight laid down for perfection.

MATING NO. 4. — Males as described in Nos. 1 & 2.

To females that are somewhat lighter in color than described in the Standard, also to females that run a trifle darker than the Standard, of course regulating so that the apron and undercolor shall be the reverse in the sexes.

MATING NO. 5. — Males very dark in hackle, even smoky edged, beak very dark in stripe, apron and undercolor very dark, even showing in web of feather, wings as dark as possible, tail black, and eyes a deep bay. (The bay eye is the strongest sighted and the strongest breeder.)

Females with extremely light necks, wings, apron, undercolor, and tail, and light or pearl eyes—in fact in and of themselves worthless, only as they possess good blood, being unfortunate in individual appearance—what the writer terms scrubs.

This mating utilizes many birds that would otherwise go to the block. Such mating of these extremes in color many times produce fine chickens. A breeder carried away by in-and-in breeding, over-

steps the bounds of reason, and this great want of color is the result. His birds being well bred, the restoration of color is easily accomplished. Some may say we should not give countenance to such mating. To such we would say, Would you send to the butcher a white princess short-horn heifer, or would you breed her to a red bull and make her valuable? Her pedigree, which shows her blood to be very fine, is the guaranty that if judiciously mated she will produce good results, and for this last mating we will say that with the exception of five to seven per cent. of the chicks, they will most likely be of as good an average as mating No. 3.

All the male progeny of this mating No. 5 that does not come well up to the Standard should be killed for poultry; for it is a questionable policy to use the males as stock-birds (and especially if they are to fill the place as one of your line of sires) that comes from this extreme mating. All faded, white-hackled males should be killed.

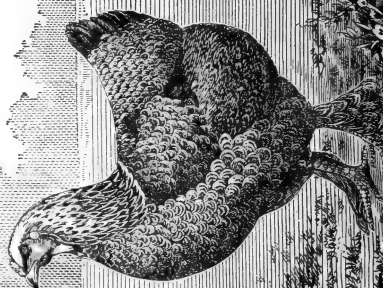
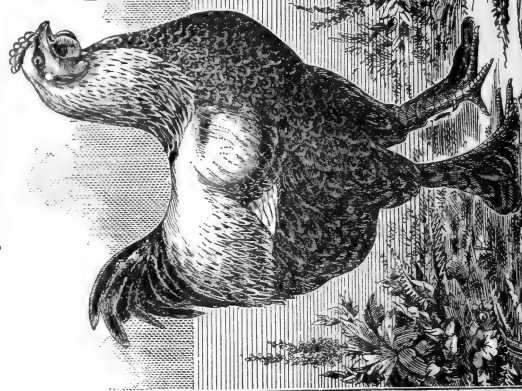
Let these rules of mating Light Brahmas, also the rule of breeding in line of sires, be rigidly observed, taking into the breeding-stock no more than one fourth of blood other than the strain, and it will mat-

ter not whether it be Felch, Autocrat, or English, the result cannot fail to be good with the necessary difference in the relationships of the different matings described.



Agamemnon, No. 27.

Cassandra, No. 28.



DARK BRAHMAS.

DARK BRAHMAS.

To make a rule and have it apply to all breeds, it is necessary that the circumstances be the same in each case, and when we offer a rule for mating Dark Brahmas upon principles derived from experiments wrought out with the light variety, we expect the same results, if the same rule of breeding, viz: adhering to a line of male ancestry, has been observed. We say male line, for it is that line which has the greatest influence, as we have shown.

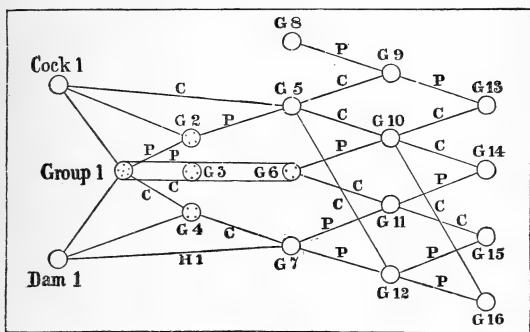
There is no breed that has proved so disastrous in the hands of amateurs as the Dark Brahma, and with which we have to be so cautious when we introduce new blood. The peculiar color and penciling of the plumage is such that a radical change of blood always deranges it, and therefore the necessity of a slow process of feeding the blood. While a three-fourths bred Light Brahma would be nearly perfect, the dark variety would not carry more than an eighth of blood out of the family, and retain the family-characteristics of penciling and shade.

This makes it a necessity to first establish family strains of blood, and then adhere closely to an unbroken line of sires, breeding back to that line of sires whenever new blood is introduced. There is no breed that demonstrates this necessity more clearly. For a striking example of it, we have only to call to mind the King of 1877, the cockerel "Agamemnon" bred by Chas. A. Sweet, of Buffalo, N. Y., that won 1st and special at the International Exhibition held at Buffalo, N. Y., in February, 1877. This bird came from an unbroken line of sires for four generations from an imported bird, and from a female line bred back strongly to the same line of sires.

When the breeders of this variety will recognize this necessity, and each of the different importations be preserved as near as possible in the family purity of blood, then will they be more valuable to the trade, as we will show in speaking of the strains of Light Brahmas. Then, also, can we apply the following rules with almost as certain results as can be obtained with other breeds.

Were we to make a speciality of the breed, we would select the best cockerel we could find, and a large-boned pullet with coarsely penciled plumage,

each from different families of blood, and breed them and their progeny for four years, as follows :



Mating the first year to produce group 1; the second year a pullet from group 1 to cockerel No. 1; a cockerel the exact type of his sire to hen No. 1; a cockerel like the sire to the pullet approaching the nearest to perfection, breeding them in and in; producing in their turn groups 2, 3, and 4, and the third year mating as indicated by the lines, producing groups Nos. 5, 6, and 7. In all the young stock using no males that were not the type of the sire, nor pullets other than the desired type in penciling of feathers and form of structure. In this way producing three families alike in type and different in blood,

yet made of the same cross. This trouble will put any breeder on a firm footing, and ever afterwards if he uses none but females in the introduction of new blood, and receives group 7 in the light of new blood, disposing of the cockerels, putting in the new hen 8, breeding as indicated by the lines, disposing of all cockerels as scrubs or poultry that have not more than fifty per cent. of the blood of the strain, he will need have no fear that his birds will not breed well and his customers be pleased.

We can recommend the following matings with a feeling of certainty as to grand results

MATING NO. 1. — Hens that are standard, which were nearly perfect, steel-grey pullets in their first year mated to a cockerel, metallic-black in breast and thighs, medium dark beak, hackle and saddle, broad in the black stripe and decided in shade. This mating should be made in producing the male line.

MATING NO. 2. — Hens that were fine as pullets but have become bronze-hued as fowls mated to a cockerel with a black breast, evenly dotted with minute white spots, black thighs, hackle

and saddle well striped, and a medium dark beak.

MATING NO. 3. — To pullets that are as near the standard as possible, having closely-penciled throats, mate a cock black in breast and thighs, which as a cockerel had a breast spotted, as described in No. 2. This will produce the best females.

MATING NO. 4. — To pullets good in other respects but light in color of breast, mate cocks black in breast and thighs, with broad black stripe in hackle and saddle, with very dark beak; said cock having been black-breasted when a chick.

MATING NO. 5. — To hens good in color which as pullets were not penciled in breast, mate cockerels dark in all respects, even in beak, stripe of hackle, breast, and thighs; the white, even, so charged as to be smoky-laced. This is in keeping with mating No. 5, of Light Brahmas.

Nos. 1 and 3 are the "ne plus ultra" of all the breeds.

In all these matings we should prefer long-bodied hens, but not so long as to narrow at the saddle. The cock should have sufficient length of back to preserve the true Brahma type. The race is too fast approaching the Cochin shape, an evil I hope the breeders will strive to remedy, for in doing so they will have less trouble in keeping up the breed to standard weight. This point should be kept in mind when introducing new blood, and large, coarse specimens should be chosen, for they tone down wonderfully by in-breeding.

If a strain is disposed to breed extremely light in color, then no cockerels with spotted breasts should be used even in mating No. 2; but should they be predisposed to the dark extreme, cocks with spotted breasts should be used in mating No. 1, and cocks slightly mottled in their breasts, in mating No. 3.

All really light-colored, stripeless-hackled and saddled cockerels should be killed, for their use will, as a rule, produce bad results. All pale, non-penciled-breasted pullets should be used as incubators the first year, and all that do not ripen into good color and have penciled breasts, as hens, should be used as poultry. The others should be mated as in mating No. 5.

We cannot leave the breed without a word to such breeders as Mr. Sweet and Mr. Mansfield, who we learn have devoted much thought to their breeding, and who are, in a measure, breeding upon the plan herein laid down; also, to Mr. Perry, who has the "Wright Brahmas," expressing a hope that they will preserve their strains as pure in family blood as possible, and that in connection with the breeding of their stock they will use a public record for the preservation of the history of their respective strains, either the "World's Pedigree Book" or the "American Poultry Association's Register."

Buyers of this breed are seeing this necessity, and we believe it will pay for the trouble. The history of this breed has been much like that of the first ten years of the Light Brahmas. The fact that the majority of the breeders believe frequent crosses necessary, and the complication of color has been the means of causing many to abandon the breed. We believe the breed can be made a popular one if the rules herein laid down are followed.

PARTRIDGE COCHINS.

MATING NO. 1. — Cockerel weighing ten to eleven pounds, hackle and saddle rich bay, the black in the same being metallic greenish-black and broad in the stripe, metallic-black breast and thighs, fluff showing a bronze tinge, indicative of rich brown blood.

Hens as described in "The Standard." This mating is the best that can be made for the male progeny.

MATING NO. 2. — Cock weighing eleven to twelve pounds, and of the same color as described for cockerel in mating No. 1.

Pullets large in size, and in color reddish-brown ground penciled with a deep brown, with standard neck and tail. This mating will produce finer females than males.

MATING NO. 3. — Males showing bronze-black tips



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to breast feathers, even slight mottlings of bay color, with thighs slightly bronzed, and a narrow black stripe in the hackle and saddle.

Females in plumage brown, penciled with black. Such faulty hens, by this mating, help to produce many good males.

MATING NO. 4. — Males very dark in beak, hackle, saddle, breast and thighs, wings and tail. Females favoring the light extreme, being lightly penciled in breast, with hackle in which the penciling of brown mottles the black stripe. This mating, like the dark-sire mating No. 5, in the Light Brahmas, often produces fine chicks.

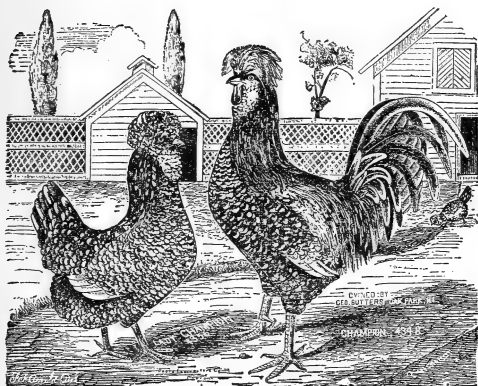
All pale-hackled, splashed-breasted and bronze-thighed males should be killed, and in subsequent matings so mate that one of the sex shall come from either mating No. 1 or No. 2. Females with clay or non-penciled breasts, or those with leaden-grey and black mixed in the plumage, should never be used as breeders.

It is a sad sight to see so many specimens fail in color. Many are better described as brown penciled with black, and buff penciled with brown. The

Standard color, "rich brown penciled with a darker brown," should be better appreciated ; so popular has the reddish buff penciled with dark brown become, that the judge who literally follows the Standard finds many to condemn his judgment.

This breed is as difficult to handle as the Dark Brahmas, and equal care in introducing new blood should be exercised.

The breed requires close breeding to maintain the fine outlines of penciling, and we think if all the statistics could be procured it would be proved that more prize-winners have come from the breeding in line as we know to be the case in other breeds. This is the case of the Partridge Cochin cockerel winning the Bristol, Conn., exhibition in 1876, and belonging to R. B. Lewis of Watertown, Conn. The cockerel came in a direct line and in the fourth generation from the imported bird Emperor, 764, through Ned Buntline 786, and a son of Ned Buntline.

THE HOUDAN.

HOUDANS.

THE Houdans in France and England rank very much as the Plymouth Rocks do in America, furnishing excellent poultry in summer and early fall, and withal being very good layers, filling the middle ground between the small and large fowls of the lands. The first importations of these fowls proved very unsatisfactory; those coming from France being much

smaller than those imported from English breeders, the stock having improved in size under their supervision. Since the introduction of Houdans into America the breed has greatly improved, and we now have yards in America where they are seen in perfection. Notable are those of Mr. H. A. Grant, of Tarrytown, N. Y., and Mr. E. C. Aldrich, of Hyde Park, Mass. In conversation with the latter gentleman we learned that his first male, a cockerel from birds imported from France, weighed only five and one half pounds; but with only two introductions of blood from English importations he has so improved his flock that some of his breeding males weigh eight and three fourths pounds,—an improvement but few breeds can show. They are also less subject to roup than formerly, home-bred birds being equally as hardy as other breeds except the Asiatics.

The breed, made up as it is of plumage in feather white and black, makes them more subject to loss in color by age, than most parti-colored breeds; and a pullet only one fourth white will generally appear quite evenly divided in the two colors as a hen; while a cockerel quite black oftentimes as a cock, appears in the regulation uniform, and at three or four years old looks tolerably white on the lawn.

Therefore, in mating, the breeder has to allow not only for loss in color for breeding, but also for the loss by age, and must commence with the young stock much darker in one of the sexes than he desires; and in his purchases of new blood, ought to select dark specimens.

The shape of the crest is of far more importance in the cock than the size of it; while in the hen, the size of the crest should take the precedent. The points most desired are: symmetry, form of the sections, and color in the males, and size, health, size of crest, and fullness of beard in the females. With this be sure to have health and egg-productive merit. Therefore, we recommend mating for the best results in the male progeny.

MATING No. 1.—Cockerels a little more than one fourth white, small in comb, finely formed crest, and full in beard; in other respects Standard.

Hens of good average size that have ripened into Standard color, from pullets that were quite dark in plumage, large crests, full beard, and small combs.

MATING No. 2.—Cock that has ripened into Standard color from a cockerel, like No. 1.

Pullets somewhat darker than Standard color, in form of crest, legs, and toes, as described in Standard. Such a pen will breed good birds of both sexes.

MATING No. 3.—Males evenly broken in white and black plumage.

Females very dark in plumage. If this mating be kept up there will soon be less light-plumaged birds, and the plumage will be more uniform than it would if light-colored sires were used.

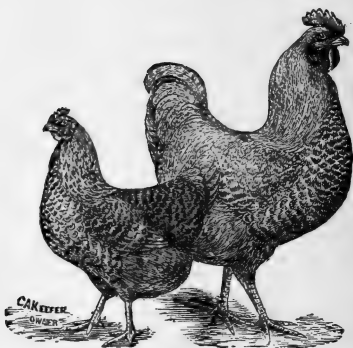
MATING No. 4.—Male nearly black, with beak and legs dark-colored.

Pullets showing three fifths or more white in plumage. In this way all the stock can be utilized, except extremely light-colored cockerels of the breed, which should be killed; for their use will in a few years bleach out the flock to a greater extent than is desirable.

We see no reason why this breed cannot be kept up to Standard color; and surely its practical worth has been very much improved.

What a few have done in size, the many ought to be able to do; but in making weight, do not lose sight of the egg-productive merit, for that once impaired would be a severe blow to the breed.

PLYMOUTH ROCKS.



PLYMOUTH ROCKS.

THIS breed, in its different families, is cross-bred in foundation blood, with top crosses of the Dominique to secure the color. To notice some of the modes which have produced these beautiful birds, we cite : —

1. — Black Spanish on White Cochin, top crossed with Dominique.

- 2.--Black Spanish on Gray Dorkings, top crossed with Dominique.
- 3.—Dominique on Buff-Cochin hens, reaching the result through the strong breeding-color quality of the Dominique, by years of breeding.
- 4.—White Birmingham on the Black Java, top crossed with Dominique.
- 5.—White Birmingham on the Black Java, and the progeny bred together, the progeny coming white and black, and Dominique. These Dominique-colored birds, bred with the males produced by mating No. 4, produced the best and surest breeders for color of plumage and legs; and were known by many as the Essex Strain, being the same in foundation blood as seen in the so-called Mark Pitman birds, of 1872-3.

Thus we see that they are the result of mating thorough-breds so strong in color-pigment as to produce new types, neither being strong enough to control the color. Thus has the color of this breed been established, and the fact that light and dark colors have been mated to produce the breed, has caused breeders of this variety to adopt the theory, that the

color must be maintained by mating the birds by the same rule.

It should be remembered that this breed is in its infancy of organism ; and being in most cases not far removed from the first crosses, there yet lingers a struggle of the different bloods for supremacy ; and we find many more cases of reverting to the original, than in older and better-established breeds ; yet the same law, in the main, contralls it ; and, although both sexes in the progeny do not grow lighter alike, yet the tendency is for the males to breed to the light extreme, while a large percentage of the females are good in color, and the balance favor the dark extreme ; yet, when we consider the whole progeny (although we are led to doubt the general rule when we think of the few black pullets that sometimes appear) the preponderance of testimony goes to prove that it, like all other breeds, grows lighter by breeding.

We have enough of the breed well on the way to perfection, and as we shall be troubled less with reversion of the progeny to the first crosses the farther we get from them, all can see the folly of trying to make the breed, instead of buying those now perfected.

The universal rule of mating light-colored males to

dark-colored females is clearly a mistake, for the male in his line generally stamps the males in plumage like himself—a type in this case which we do not desire.

We mated in 1876 a more than medium-dark male to nearly black-barred females, and the result was the best colored flock of Plymouth Rock chickens we ever saw. There was not a black pullet in the lot, and the lightest shade in the males would be called medium color, while a light-gray male used on these same females produced but few desirable-colored females, and all but very few of the cockerels were the counterpart of the sire. Surely in this breed it pays to “find the highest type to perform the paternal act” if we expect to produce our ideal chickens.

These rules must not be condemned upon one exception. “A single swallow does not make a summer.” A light cockerel for a single season may breed splendid chicks, breeding back to a perfect sire, but it is morally certain that his sons will revert with double force to the evils found in him; for, if in all other breeds we find the rule that the chicks favor the grand-parents, why should this prove an exception? The breed, as it becomes more and more perfected,

will be governed more and more by the rule applying to other breeds.

In the light of our experience with this breed so far, and finding it so in unison with our experiments with the Light Brahmas, and the results of '77 being like these of '76, we recommend the matings of this breed as follows :—

MATING No. 1.—Males with breast of the color desired in the females, with yellow beak and legs, with neck, back, and tail evenly barred the light shade predominating, yet free from any white feathers in flights or tail, mated to females in plumage slightly darker than, yet accurately described by the Standard. This should be the mating to preserve the male line.

MATING No. 2.—A cock like the one described in Mating No. 1, mated to females slightly lighter in color than described by the Standard, will be found to produce such females as the popular taste requires ; but the males will be hardly up to color.

MATING No. 3.—Males a light medium in color, mated to the very darkest females. Males ex-

ceedingly dark from this mating should not be used in one's best pens, for the very extremes should be avoided.

MATING NO. 4.—Males much darker than the medium, with very deep yellow beak and legs, mated to light-colored females (those having either gray breasts and white or cloudy neck-feathering), will be found to produce many very fine chicks, and the mating stands upon the same basis as mating No. 5 in Light Brahmas. All the faded, light-colored males should not be used in breeding for fancy points. They cannot do the breeder any good, unless wanted for poultry purposes.

The color of the breast, eye, and beak are the best indications of color in breeding. A sire medium in color of plumage, with a deep-yellow beak, in which is seen indications of a color-stripe, and with a deep bay eye, will breed darker-colored chicks than will a sire dark in plumage, light in beak, and having a light-colored eye.

We believe the requirements of the Standard in the color of the leg to be too arbitrary. There is no

reason why this breed should not be as impartially dealt with as the Dark Brahmas, and like them allowed to be yellow or dusky yellow in the legs. There is more dark-leg blood in the Plymouth Rock than in the Dark Brahma. Again, the females seldom if ever come yellow in leg when chicks, but as they approach maturity, grow brighter in color and clearer in shade.

This breed, if properly handled and kept in its true position, occupying the middle ground between the small and Asiatic breeds, will become better appreciated, and any attempt to produce fowls equal in size to the Asiatics will mar their usefulness. We are glad to see that such breeders as V. C. Gilman of Nashua, N. H., are taking this stand, for we believe they will be sustained in it. We shall breed our birds upon that principle, striving to produce them in just that size and type which will produce the most merit, viz : the best poultry and the greatest production of eggs.

BROWN LEGHORNS.

BROWN LEGHORNS.

THE first importation of Brown Leghorns into this country was in 1853. This importation was bred along the Mystic River, Conn., and they were then called Red Leghorns. These fowls were short in leg, red in ear-lobe, and very small in size. The modern acquisition of white ear-lobes, long legs, and ~~not~~ more than five points in the comb, the dark-brown color, and greater weight, has been the result of the

following crosses known to the writer : Spanish sires bred upon Black Red Game hens, and the progeny bred to Brown Leghorn cocks, and this progeny inbred to sire ; again, Black-Red Game sire upon Black Spanish dams, and the progeny bred to Brown Leghorn cock, and inbred as before ; and Black Spanish hens have been bred to Brown Leghorn cocks, and the progeny inbred.

Thus we have birds of a type far different from the original ones, and the Brown Leghorns of 1877 are as much different in color and type from those of 1853 as can well be imagined ; and they well deserve the appellation of an American-bred bird. Now there is an excuse for these crosses. They were found to be chance birds in their own country, but in acclimating prove a valuable acquisition to this country's poultry stock. Finding the stock indifferently bred in its native country, it was considered easier to produce blood for new infusions from a foreign element, which was of greater benefit than to rely on new importations. Were we making a specialty of the breed, we would certainly make the following crosses for future use, viz : A Black Red Game cock upon a mahogany-breasted Partridge Cochin hen, breeding a pullet of this mating to a Black Spanish

cock; and that progeny to a fine Brown Leghorn cockerel, and breed his pullets back to him. The breeder would in this way get the needed size, quiet disposition, and the constitution of the Cochin; and also run clear of the white feathers produced by the use of the Clayborne Game of recent crosses.

Breeders will appreciate this trouble, and such a stock of birds will in three years be much valued. They are needed now, for the race is fast losing size and stamina. Of course size and constitution can be given in a single cross, but such a cross would be too crude. The half-bred Spanish and Game pullet will do this; but it would injure one's reputation to put such eggs on the market. Patience and perfect breeding pays.

In these crosses, and in fact in all crosses, let the point sought for be the get of the breed in which it is the prominent feature. For instance, if you would cross for a white ear lobe, use the Spanish male on the Leghorn female; for the progeny carry back to grand-sires, and Spanish crosses will show the white ear even in the sixth generation. The result that breeders are striving for can be more easily attained in this way, than by the use of the Spanish hen. The Brown Leghorn race is faulty in this respect, for

just this reason ; and it is a very strong proof that the original fowls were red in the lobe. We find it much easier to get females with fine ears than males.

In mating the race as we find it at the present time, we would recommend the following :—

MATING NO. 1.—Sire, a cockerel with a rich bay hackle striped with black, which as a chick was also known to have had the neck feathers black in stripe ; comb having but five points, and in other respects standard.

The dam, pure salmon brown, but not that deep shade sometimes seen ; the ground-color of back and wing coverts pure brown, penciled with a darker brown, and the feathers of saddle, lapping on to the tail, having a sage tinge to the brown color. Wings free from all red or brick color ; the hackle free from all yellowish-brown pencilings ; comb that stands partially erect, rolling at about one half its height, and in other respects as near to the description of the Standard as can be obtained.

This is the “ne plus ultra,” and should be the mating for the male line. The females from this mating will be fine also.

MATING NO. 2.—Males as near Standard as possible, except the comb should have five points, and the neck-hackle may be a light bay with a tolerably good stripe in it. A very narrow but black stripe is to be preferred, though one broader but not much darker than a brown, may be tolerated.

Females quite dark in the salmon shade of breast, wings and back brown with penciling that shades nearer black than brown; also wings free from any red shading. In other respects Standard. Such a mating will produce as fine females as mating No. 1.

MATING NO. 3.—Males of a like character as described in mating No. 2, yet a lighter shade can be indulged in.

Pullets with exceedingly dark breasts, and having the red tinge in the wings. This reddish tinge is a serious fault, yet such birds produce many fine chicks.

MATING NO. 4.—Males dark-bay hackled, the stripe being very distinctly defined, even at the base, so wide as to form a black necklace around the neck—in fact the dark extreme in color, and Standard as to form.

Females, those we term the light extreme, whose back and wing coverts look like faded brown cloth, and pale in breast color.

The progeny may be restored to color in this cross and faulty females thereby utilized. The light straw-hackled, mottle-breasted, and bronze-thighed males should be killed, for to use them is an evil to be shunned, as described in other breeds. The first and second matings are considered the perfect ones, and the third and fourth those of expediency or necessity. The breed is certainly one of the best for practical purposes, and with the Plymouth Rock, seems to fill a place in the economy of poultry that none of the other varieties are so well capable of doing.

We cannot leave the breed without a tribute to the late J. R. Pierce of Worcester, for he was a gentleman and a genial friend, and the stock he left, was in all probability the purest in real Leghorn blood of any in the country. Mr. Pierce acquired the new features of white earlobes, and high station, with less of foreign blood than any other breeder. He was a strong advocate of selection in breeding. We think it will be found to be true that he never made a Spanish cross, and sold the birds for pure Leghorns in his

life. He leaves us a legacy of honesty in the trade that many would do well to emulate. Many remember the cock "*Chief*" bred by him, which was the *best* in five well contested and prominent exhibitions; and which is now over five years old, and still holding the vigor of his youth. This bird, with the entire Pierce stock, was purchased by Rev. H. A. Shorey of Boston, and formed the foundation blood of that gentleman's present breeding stock. May the future record of this strain be no less successful than its history has shown it to be in the past.

BUFF COCHINS.

IN Self-Colors the male should always be the darker in shade.

MATING No. 1.—A cockerel of a deep reddish buff-color, with chestnut tail and wings, Standard in other respects, should be mated to hens that are pure buff in color, medium in shade, and in form of structure as described in the Standard.

MATING No. 2.—A cock of medium shade, the result of a reddish-buff cockerel, but showing black in wing and tail, mated to pullets that are good exhibition color, will produce fine females, while pullets very dark in shade mated to this same bird will produce fine males.

MATING No. 3.—Males, dark in every respect even having nearly black tails, to pale-whitish buff females. This is the only mating of extremes, especially in Buffs, that should be made.

All pale-buff males should be sacrificed to the market-man, for they not only become mealy in the wings and white in the tails with age, but their progeny as a rule are faulty, and it is worse than folly to use them as breeders.

SOLID COLORS.



In the solid colors like white and black a good constitution and health while breeding is all-important, no matter what the breed, for brilliancy of color and purity of shade are dependent upon it.

The rule to guide in mating is as follows :—

A metallic-black male mated to females of the same hard smooth surface-color is the best for both males and females, but such a cock mated to females dead-black, lacking in brightness and metallic surface, will breed fine pullets, but the male progeny is generally much poorer than the female. In black there is little to do beyond these two distinctions of color. The metallic hard-finished surface and the dull black, if crossed, restores to the progeny the metallic-black desired. Birds of this cross should be mated to those of the metallic-black mating.

These facts we glean from our friend James M. Lambing whose cut we present. Mr. Lambing keeps up the blood of his Hamburgs by importing each year the best blood he can procure.

GENERAL REMARKS.

ON THE TREATMENT OF BREEDING-STOCK.

A FEW general remarks as to repairing diseased or broken plumage, etc., may not come amiss.

If in white birds, or in the white in parti-colored specimens, colored feathers appear, especially if black feathers appear in white, they will oftentimes if pulled be replaced by feathers true to the color of the breed.

Young cockerels are often attacked by older birds, and their plumage marred, in which case the feathers so injured grow slim and longer than the others. We have seen sickle feathers corrugated along the quill and white in a black tail, removed, and afterwards replaced by a perfectly black pair. We should not despair of an otherwise exhibition bird, till we had removed these diseased and faulty feathers, and given time for them to grow anew, for the majority of cases prove their restoration true to color.

The only way we can keep our stock in presentable plumage during the breeding-season is by watchfulness, and by removing all diseased and broken feath-

ers, which will be replaced by new ones ; otherwise the fowls must wear their broken plumage till the moulting season, and look badly.

A Light Brahma having, say from two to twenty black-tainted feathers in the back, if they are pulled, will often replace them with white ones. The process can be repeated till all are secured true to color.

The best time to hatch the breeding-stock we believe to be from May 20th to June 10th. Such birds come in the time of year when they do not suffer from cold, and they grow rapidly and continually till maturity. Cold weather comes on just in time to check their laying ; and generally they will not have laid more than ten or twelve eggs before we are ready to use them ; and we get them vigorous from the freshness of young-productive life. Again, the adult fowls moult and rest, and generally have laid but few eggs before their eggs are needed for incubation. From such pullets, and these rested hens, we believe the best eggs for incubation are procured. Early pullets that commence laying in the fall, and lay through to March, sustaining a strain of six months' laying, we do not consider as good for the breeding-pen as the pullets named above. We believe the time and the

way which approaches nearest nature's fitness of things, the best to produce our breeding-stock.

The first forty eggs laid by a hen after moulting, or the eleventh to the fiftieth egg laid by a pullet, are better, and the chicks from them prove larger and finer, than those laid afterwards during the same breeding-season.

Cockerels are the safest for winter breeding. A good plan is to use a cockerel till April 1st, and then turn the harem over to a young male coming two year, old, from which to raise your breeding-stock, thus producing them in the time of year nature intended. Such birds generally have more symmetry and merit than those unnaturally produced.

There can be no definite rule for number of females to one male; this the breeder's good sense must determine. There must be enough so that copulation will not be accompanied with coercion. This number will be found to be. in Asiatics, from eight to fifteen; in Plymouth Rocks, ten to twenty; Houdans, from ten to fifteen; and in Leghorns the number can still be increased. Where less numbers are kept, the male should not be allowed to run with the females constantly.

Experience teaches that twenty is better than two.

Two years ago we had birds penned in numbers ranging from six to eighteen, and in every case the eggs from the larger number hatched the best. In one pen they utterly failed, and when we increased the number to fifteen birds nearly all the eggs hatched, and the progeny were largely female.

The feed while the plumage is growing, both in chicks and moulting fowls, has much to do with its color. Writers affirm that the reason wild birds are so stereotyped in color is because of their freedom to select just what food they need. We do not think it so much the kind as the supply of it, and protection from the injurious effects of the sun, that controls the color; nor do we acknowledge that the wild partridge is any more stereotyped in color and form than our Partridge Cochins. This question was raised at the Connecticut Poultry Exhibition, when H. F. Felch and H. S. Ball retired to the market and plucked feathers from different partridges and brought the same to compare with the Cochins then on exhibition which showed them to be no nearer uniform in plumage; another fact, the partridges had both smooth and feathered legs.

If a chick be starved it will not only be dwarfed in stature but will fail in color. We have seen speckled

half-starved Light Brahmas when put on generous diet slough their objectionable coats and grow plumage true to their kind.

Young chicks should be fed on boiled egg, canary and millet seed, wheat, cracked corn, whole corn and bran mashed with corn meal. These fed in abundance, and a careful protection from cold winds and rains, will leave no excuse for bad plumage if the breed be pure in blood. In milk there is everything a chicken needs but fat. Baked indian-cake and warm milk will make chickens grow faster and put exhibition birds in better trim than any other two things we can name.

The finest specimens are those that do not cease to grow from the time they hatch till full maturity. A chick that suffers a severe check in its growth while young, seldom proves a prize-bird, and, when hatched in winter, provision should be made for producing green vegetable food in the way of green oats, to carry them through till the grass comes in the spring.

The care of the flock does not consist entirely in furnishing a plenty to eat, but watchful oversight, seeing to it that they do not huddle in large numbers in one place at night. We used to think that it was injurious to allow them to roost before six months of age, but we have altered our opinion and recommend

it at the age of sixteen weeks. They should be induced to occupy low perches two inches wide, for there will not be one half the injury arising from this as from the poisoning influences of their exhalations when crowded into small coops.

If we take pains to cover the chicks whose weaning comes in a cold season of the year, by throwing a blanket over the coop to keep off the cold night-air, or to coop the broods in the afternoon when cold east-winds are blowing, we many times secure the season's success. By these little attentions at just the right time we enhance our chances of winning at the winter exhibitions.

We can assist nature to do her work perfectly. We do not consider it a sin to straighten a hare-lip or crossed eyes in our children, or, if the muscle of the leg be contracted, to use the knife, that they may walk without limping the remainder of their lives, nor do we consider these things injurious to reproduction. And taking this care of our own offspring, wherein is the sin, if by judicious means we secure perfect development in our chicks? In nine cases in ten, chicks hatch with a perfect organism; now, is not any work legitimate that secures its perfect development? Should a chick hatch web-footed, the

web should be cut back to its proper structure, thus liberating the toes to grow in their legitimate angles. While the comb in Light Brahmas chicks will hatch perfect, its peculiar shape makes it less likely to develop properly than a single comb. In many cases bad combs can be prevented by proper treatment.

The first thing that nature does in case of a wound is to repair it. Therefore, if the middle division is seen to be growing too rapidly, the serrations of this division should be pricked with a sharp instrument so as to make them bleed. This process will check the growth of this division and allow the side divisions to grow into proportion with it. If the middle and one side seem to be growing faster than the other side, the same process of treatment applied to both will allow the weaker division to grow into proportion with them. An old cock may give a chick a severe peck in one side of the comb so as to turn it to one side. A corresponding wound on the other side will maintain it in its proper position. By this means we succeed in making the comb *grow* into proper shape. Is it not better to do so than to let it grow into an irregular, deformed mass, and then turn butcher and cut and slash the comb, making a bad job of it, and receive the just censure of our fellow-

breeders? Three fourths of all the bad combs are the result of external causes and unnatural feeding to produce very large birds.

The leg-feathering can be wonderfully assisted in its growth, and many a crooked toe saved by pulling all foul feathers. The skin of the foot and leg is tough, and the feathers oftentimes grow along under it, from one fourth to one half an inch before penetrating the skin, thus causing the toe to turn in. We have pulled these feathers four times before succeeding in making them grow properly.

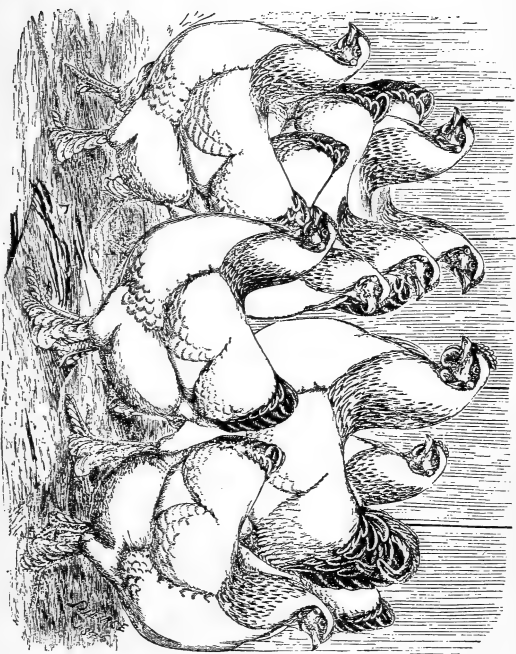
The breeders and amateurs as a rule are too lazy to attend to all this minutiae (and the writer is as guilty as anyone he knows, yet a guide-board may tell the way, if it does not go itself).

THE STRAINS OF LIGHT BRAHMAS.

WE speak of fowls as being of such and such a person's strain, but with no significance in the sense of individuality. Fowls cannot be said to be of a strain unless it can be shown by history or pedigree of blood that they possess fifty per cent, or more of the blood of the strain. A type that reproduces itself is simply the result of an established strain.

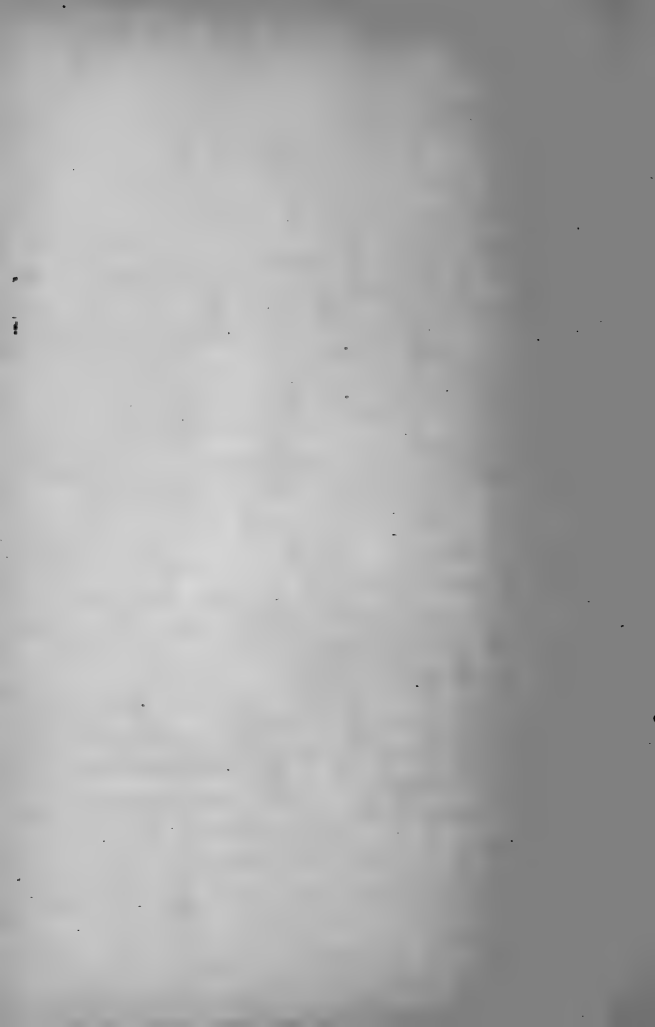
It is proper to speak of Williams', Gilman's, Lambing's, Buzzell's, Dibble's, or Bacon's stock; but to speak of strains of blood in this connection is all wrong, for there does not exist, nor has there ever been, but four strains of Brahma blood brought to the country, and we have to number the birds Mr. Burnham calls Grey Shanghais, to reach even that number.

If A purchase a cock of B, and the second year purchase one of C, to follow it upon his flock, the chicks cannot be called A's strain; nor can it be called A's stock, only in the sense of ownership, for the blood is one half C's, one fourth B's, and only one fourth



LIGHT BRAHMAS.

Felch Strain.



the original blood of A's stock, C's stock being the more proper name, since it has twice as much blood of that strain as either of the others.

The word strain implies, in breeding, a strict adherence to the blood of a particular family or importation, admitting no more foreign blood than is necessary to sustain the health and vigor of the race.

In this chapter it is our purpose to show what strains have been received and to what extent they have been retained, showing as far as possible what the principal Light Brahmas of the country are made up of; for the time has come when information showing that a recorded history of blood and breeding of both sire and dam is needed.

One may have females of one strain and purchase a male of another, and, by in-breeding, secure both in their purity, for there is a constant waste going on in the blood, which must be replaced; and we think it can be demonstrated that more than one eighth of foreign blood has to be introduced before the original suffers any organic change, and that this one eighth is consumed by the original in supplying this waste spoken of. To illustrate our position, we will mate the strains as we would a pair of chicks of one strain, and show that the same rule of in-breeding applies to

them as to the fowls of an established strain. We mate a Felch sire to an Autocrat hen; the first season the progeny is one half Autocrat and one half Felch. In the second year we mate these pullets to this same sire, No. 1 Felch, and produce chicks that are three-fourths Felch and one-fourth Autocrat. We also mate a cockerel of the first cross to the Autocrat dam, and produce progeny three-fourths Autocrat. The third year we mate the three-fourths Felch pullets again to the original sire, and we produce seven-eighths Felch birds, while again mating a three-fourths Autocrat cockerel to the original dam, we produce a progeny seven-eighths Autocrat. We have now produced the two strains from a single pair, and we claim them to be in their purity, for the blood of each has been gradually reduced in each family until entirely consumed. Beyond the point named it will not do to go, as further in-breeding would result in sterility; yet we can take birds from each of these families of the third year's breeding and repeat the same process "ad libitum."

We can vouch for this experiment up to this point of seven eighths. It is on this principle that we have the pure Duchess and pure Princess cattle; and although we may say a cow is one one-hundred-and-

twenty-eighth Old Favorite, yet is purely the blood of Old Favorite of Short-horn fame, we are consistent, for this infusion of one eighth new blood but supplies the waste in the original ; consequently nothing is added, and the blood remains pure.

Among horse-men the rule generally followed is to breed out, as they term it, once, and breed in twice, by which process they reach only the three-fourths rule, which is hardly enough to secure against loss of type and color in poultry ; for we have demonstrated that one eighth is the amount actually consumed, and if we do not breed in to that extent our flock gradually changes in type and color. If with a strain once established we make a cross, and breed back to sires of the strain having out-crosses other than the ones we have described above, we can breed in so far as to produce chicks sixty-one sixty-fourths of the blood of the original strain. Males of such production are valuable, but the females are generally poor layers and poor breeders, producing small, tough-shelled eggs, which seldom hatch.

The matings that produce birds three fourths and seven eighths the blood of the original strain (this being the prolific stage of in-breeding) have the most merit as egg-producers and show-birds. Pride in

one's strain, and a desire to keep up the prepotency in the male line should be the only inducement to breed beyond the seven-eighths cross.

To do this work of breeding, and the more easily to control it, a record or pedigree should be kept by every breeder; and all males and pens of females used as breeders be named, if for no other reason than to give them an individuality, and to fix them in memory.

All breeders should keep a pedigree-book. The time has come which compels us to do so for self-protection, for the prominent strains are becoming more or less intermingled. The Standard by its influence is converting the different strains into one common type and color. Since there is no outward indication of difference of blood, one can see how essential a pedigree is, so that in mating we may be sure of a cross when we purchase a sire or dam. One hardly wishes to send one thousand miles for specimens to put into his flock, and find them identical in blood with his own.

The cattle-breeder, in purchasing a bull to stand at the head of his herd, looks up his pedigree, and by that pedigree is enabled to select one that is bred in line with his own stock; yet with a cross of blood

that will by its introduction improve his herd and be consumed by it, without changing in any way the individuality of the strain of blood he takes pride in breeding.

This introduction of new blood is but the feeding of the strain; and it is of as vital importance to know what we feed to the blood, as to know what we feed in the manger, to support the life of the organism.

A truthful record or pedigree would crush out the existing jealousies, and restore harmony, for it compels breeders to stand or fall upon their own merits, and makes the blood and the specimen of a strain worth as much in one man's hands as in another's, as we now see demonstrated in Short-horn cattle.

None can fail to see what a benefit it would be, if a printed record, or history of all the Light Brahmas now bred in the States could be made as a basis,—a foundation-blood, from which to obtain a pedigree, or to use in mating; and what an influence it would have on the same, by bringing such strains and sub-strains into notice, and as a result furnish a ready market.

The real strains being once established, and the situation understood, the breeder would be relieved of the annoyance of having inferior stock palmed off

as his strain by irresponsible parties, and the blunders in mating made by purchasers would be prevented. The pedigree discloses the breeder; and the assertion that such are Felch, Autocrat, or Philadelphia birds, if proved by a pedigree, has a meaning, and protects the honest breeder. We know many are opposed to pedigree, for it prevents the selling of superannuated hens as yearlings, and presents to the amateur too sure a rule for breeding; for the selfish say: Let the beginners do as we did, and work out the problem for themselves by experience.

In looking over the winning birds for the past ten years, it is surprising to see how universally it is true, that they are the result of uniting two strains, and breeding back to one of them. As we present the history of the different strains and sub-strains, or flocks composed of two or more strains, with statistics as to their breeding, the rule will be apparent.

THE BURNHAM STRAIN.

This strain was as he affirms, and as we understand the matter, the Grey Shanghai of 1849-50. From this blood was produced the fowls presented to the Queen. In 1866 the purest blood of this strain was

found in the possession of Mr. Phillips, and was known and handled by Mr. Williams and Mr. Comey, as Phillips birds. Mr. Phillips, just before his death, in conversation with Mr. Comey, asserted that his flock was from the birds sent to the Queen by Geo. P. Burnham, that he had bred them as closely as he could, using but one or two top crosses, and breeding back in a general way. He did not preserve the strain by any fixed rule of in-breeding, yet he must have preserved to a large degree the original blood, as his birds, to a large extent, came with single combs. They were dark in blood, preserving the Chittagong characteristic of dark undercolor. The blood of this Chinese strain has been used to a considerable extent by breeders of other strains, as we will show anon. Until 1856 or 1858, these birds were known as Chittagongs, or single-combed Brahmas, as was also the Rankin strain.

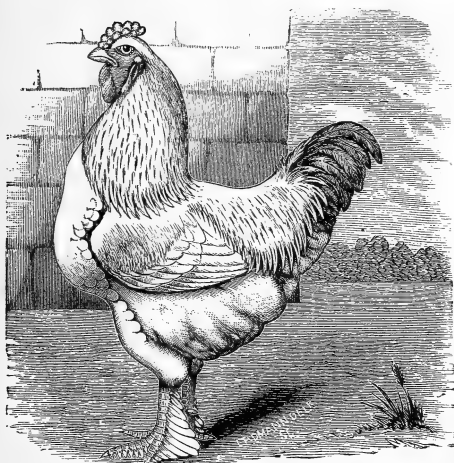
THE RANKIN STRAIN.

The original birds of this strain were from India. This Mr. Rankin can clearly show. They were large in frame, had low single combs, dark undercolor in back, and large lemon-colored legs with a prominent

greenish-blue vein down the inside. The last feature seems to have followed the crosses of this strain with other strains, and seems to have been transmitted more readily than any other. Up to 1866 this strain or importation was kept pure. About that time the different exhibitions ceasing to give prizes to single-combed Brahmas, Mr. Rankin was compelled to use top crosses of pea-combed sires from the Chamberlin strain, and other sub or mixed strains, to secure the engraftment of the pea-comb on his strain; and as breeding back so as to retain the pea-comb would be too discouraging a process to accomplish his purpose, it is more than probable that the race hardly held its own as a strain, for it would be obliged to retain full fifty per cent of the original blood to be called a strain now.

These birds however have been largely used by the breeders of other strains, for Mr. Rankin shipped large numbers of them to Connecticut and to and about Philadelphia, which, with the Dr. Kerr birds, have largely entered into, and, being subject to top crosses of the Chamberlin strain, have become the origin and foundation-blood of the Philadelphia (Tees) strain.

THE PHILADELPHIA STRAIN.



COCK WRIGHT.

Bred by Joseph M. Wude (Philadelphia Strain).

The Philadelphia strain was known as Kensington or Tees stock about 1867 and 1868. While these birds can hardly be called a distinct strain, yet as such they have been used, in connection with those of the Rankin strain, by the breeders of the Autocrat and Chamberlin strains, and the crosses have proved

of the very best, and as auxiliaries deserve a notice in this connection.

This sub-strain (so to speak) which comprised the Brahmas in and about Philadelphia in 1866, were the winners in the Philadelphia and the New York exhibitions in that year, and were called the "Tees" birds. In conversation with Messrs. Henry, Tees, Sharpless, and Herstine, we learned that the foundation-blood was originally from India and the Dr. Kerr birds which were from China. Whether they made allusion to the birds sent to Philadelphia by Mr. Rankin or to birds direct from Chittagong, we cannot say, and it makes but little difference, for, as they affirmed, they were single-combed, as a rule, and large of frame, with pale-yellow legs.

From 1863 to 1868 these birds were converted into pea-combed stock by top crosses of birds from Connecticut and New York, which were probably from the Chamberlin strain, or birds of like origin. At least, we know this to be true in the case of the bird known as the fourth-prize cock of New York, in 1868, at the rink, he being from a cockerel bred by Mr. Pool of New York, and out of hens by Baron Sanborn 302, bred by I. K. Felch.

I have spoken of the peculiar color and vein in the

leg of the Rankin strain, and the power with which the race transmitted it.

The fact that this feature, though in a milder degree, was apparent in the crosses of the Philadelphia birds with those of the Felch, also with the crosses of the Autocrat strain, seems to indicate that the Rankin or similar blood entered largely into the foundation-blood of the Philadelphia birds of that period, as the parties I have alluded to affirm. Again, the birds brought from Philadelphia in 1868 and 1869 had the color of the Chamberlin leg, yet they still retained the Rankin shape of bone, being more round in its formation than that of the Chamberlin stock. It will be seen that all the birds purchased of Mr. Williams from his so-called "Favorite Stock" did not materially alter the blood, for they were but the result of mingling the blood of the Rankin, Burnham (the Phillips Stock), and the Chamberlin strains, which is like the blood of the Philadelphia strain, for Burnham's and the Dr. Kerr birds, they affirm, were alike and from China.

The cock "Wright," whose cut we are able to furnish through the kindness of Joseph M. Wade, editor of the Farmer's Journal, of Hartford, Connecticut, who had him, we are assured was the best type of

the Philadelphia Brahmas of his day, 1872. These birds, it will be seen, were quite short in the back as compared to the Autocrat or Chamberlin strains. The descendants of this bird are now found in their greatest purity of blood, in the hands of McKeen and Hulick, of Easton, Pennsylvania, they purchasing of Mr. Wade eleven of Wright's sons and daughters, upon which there has been but one top cross, that being an Autocrat-bred bird, and the progeny bred back to the progeny of Wright. We understand McKeen and Hulick have procured some males of the same blood as Wright, and will strive to reproduce these birds as near as is possible in the same form as they were found in 1866 and 1868, when such good results were obtained by the infusion of the blood with that of the Autocrat, and Chamberlin or Felch strains.

One fact worthy of note here is, that the old hen exhibited by Charles Tees in 1867, then eleven years old, was as fine a Light Brahma hen in color and size as has been shown since; and her beautiful pea-comb shows that there were pea-combs, and bluish under-colored specimens bred in 1856. She weighed fourteen pounds and four ounces, a larger weight for a Brahma hen than has since been bred. Thirteen

pounds and fifteen ounces, and fourteen pounds being the best weight for a Felch bird, and fourteen pounds and two ounces the largest Autocrat hen on record. The writer fails to see that the Almighty has suffered man to increase the size beyond that of the original.

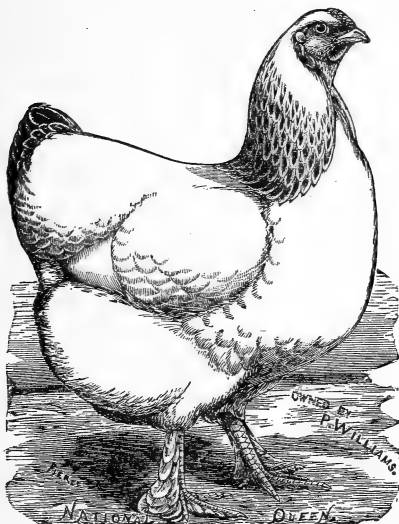
There were several breeders of these Philadelphia birds of 1868, and if they have kept a record of the top crosses used since that time that have been of a different strain, it will be of much interest to others; for, as breeders, we are compelled to breed to that form and color defined in the Standard of Excellence, and our strains constantly needing blood-food, it makes it necessary that the blood of each strain be different, and thereby does it become more valuable.

All the strains are dependent one upon the other for this blood-food, and not only is it a personal interest to preserve these distinct types of blood, but it becomes a general necessity, for a strain that is isolated soon runs out; the loss of color and vitality soon works its own ruin.

The top cross of Beauty Duke upon the Philadelphia birds, as Mr. Wade and the writer understands the matter, was simply adding a new top cross to the amount of one fourth the blood of the Chamberlin derived from the cross of the fourth-prize cock of

New York, 1868, with Felch hens. But if, as it has been claimed, he was the progeny of a son of Duke of York and a Philadelphia hen, upon a Felch and Philadelphia hen, then he carried into his Philadelphia harem one eighth the blood of Old Autocrat and one eighth Chamberlin blood, as a top cross upon the Philadelphia birds of 1868, and in Mr. McKeen's hands, I learn, the progeny was bred back to Wright, as in the case of the progeny from the males purchased of Mr. Plaisted, spoken of above.

THE AUTOCRAT STRAIN.



A LIGHT BRAHMA HEN

of the "Autocrat" strain, winner of the National Exhibition at Chicago in 1876.

The history of this bird, Autocrat, is well known. Mr. Estes purchased the bird in Fulton Market, New York, the seller avowing that he was imported. The subsequent history of this bird, his strong breeding

qualities, the fact that when the blood was crossed with other strains it produced new types, this with the Pearl eye so different from the prevailing bay eye in other Brahmas, to my mind, presents grounds for believing the assertion that he was imported, although there is no proof to that effect.

This bird was bred one season to females whose foundation-blood was the Geo. P. Burnham birds, being the progeny of the stock sent to the Queen by that gentleman; the birds being "Phillips Stock," so called by Mr. Williams who sent them to Mr. Estes. In 1866 Mr. Estes presented Autocrat to Mr. Williams, who bred him to the best birds he could procure from several sources.

The better to understand the advantages received by the breeders of Light Brahmas through the advent of "Old Autocrat," it is necessary to say, that before the war Mr. Williams' stock of Light Brahmas consisted of the Chamberlin blood, through purchases of them at Valley Falls, the Burnham blood, and the blood of the Rankin importation. When Mr. Williams returned from the war, his old love clinging to him, he commenced again, by purchasing the best stock he could procure in his locality, the same being descendants from stock he bred before going south;

also birds of Mr. Strout of Framingham, that were from a cock purchased in Abington, mated to a Felch hen by a son of Baron Sanborn 302 ; also, hens of H. G. White, which were pure Felch, by Baron Sanborn 302. Birds bred from these elements were the foundation-blood in Mr. Williams' yards, and out of which came his "Favorite Stock;" and the same were in his possession when Old Autocrat appeared on the stage. Autocrat was mated to the best birds to be found in all these elements, and the male produce was Autocrat 3d, Eaton's Autocrat, Lord Berkeley, and two other sons.

Old Autocrat died early in the season. Lord Berkeley was a dark-plumaged bird, and as he bred very dark he was sold to go West.

Autocrat 3d was a very large bird but did not prove a good sire, many of his chicks coming single-combed. The greenish-blue vein was prominent in the leg, which strongly indicated a Rankin cross in his dam. He was lost by sickness, and his place filled by Eaton's Autocrat, who proved a good sire, but the plumage of his chicks was dark. In all these Autocrat-crosses the dark undercolor prevailed.

One of the other sons was sent to Mr. Estes, of North Carolina, where he was bred to birds of

the year previous, out of the Phillips birds by Old Autocrat, producing the birds Colossus, Apollo, and Triumph, all of which were purchased by Mr. Williams. That the blood of Old Autocrat was radically different from other established strains, is apparent in the fact that whenever crosses were made with it they proved good, showing increased size and producing new types, which had equal strength in breeding with other established strains.

The friends of the old bird express a regret that he could not have lived, and his progeny bred back to him, thinking that the results would have been astonishing; and they consider his death a misfortune. Now we do not concur in this opinion, although friendly to Old Autocrat, for his progeny bred too dark. It may be said that this fault of the progeny was derived from the Phillips hens. To this we cannot assent, for to admit this is to accede the merit of breeding to the Phillips stock, and to admit that Old Autocrat was weak in breeding-qualities; and as all breeding tends to grow lighter, it is this very dark breeding that has made his blood so valuable to breeders of other strains. The whole rank of breeding within two years will hail the advent of another such bird with joy. To prove that this dark blood

and breeding is the work of Old Autocrat, we will say that all the crosses of the old bird with the Felch stock resulted in dark-plumage birds. The progeny of Autocrat 3d, whose breeding indicated so strongly the Rankin descent, bred even darker than the others ; the cross of Son of Colossus with the Felch hen Penelope was also dark. A son of Duke of York out of a Tees hen, even-mated to Felch hen, bred dark ; yet the Rankin blood bred to Felch did not breed dark, nor did the Tees hen bred to Natick, the Felch cock, prove dark. We could cite other cases of like breeding, all of which goes to prove Old Autocrat to have been dark in blood ; and in my judgment, had he lived to have been bred to his own progeny, they would have been so very dark that he and his descendants would have been abandoned. As it is, he and his blood have proved a blessing, and, where breeders of other strains have had the patience to wait and breed back, have been very much appreciated. The fact that the hens he was bred to in Mr. Williams' hands were of a mixed strain of blood, made his progeny of far more value ; for it gave the power of breeding more readily to his influence, and they being thus made up, gave the preponderance of blood to Old Autocrat, which with this great strength

of breeding which we have shown, entitles the blood to the name of a "strain." One thing is certain, his blood has been the only competitor the Chamberlin-Felch strain has ever had, and surely the Felch and the Autocrat birds have done more to make the interest in Light Brahmas what it is in America, than all other causes combined.

So thoroughly has Mr. Williams become identified with this strain, that to a great extent it is quoted as Williams stock. But there are others in a like manner quoted, which makes it fair to state that Mr. Johnson of Newburyport, Mass., Mr. Comey of Quincy, Mass., Mr. Plaisted of Hartford, Conn., Mr. Buzzell of Clinton, Mass., as well as Mr. Williams, its principal, are breeding the Autocrat strain, fed by the blood of the Felch and the Philadelphia strains, and that of other sub-strains, to maintain its vitality.

The author of "Secrets in Fowl Breeding" speaks of Mr. Plaisted as breeding the Chamberlin strain; but this is not correct, if we are to credit the pedigrees in the "Poultry-World's Pedigree Book." By consulting that, we see that it is as strongly bred to Autocrat as can well be done, for that gentleman, when he renewed his old love in breeding Brahmas, purchased of Emory Carpenter his entire stock, which

comprised one brother of Colossus, and Carpenter's stock, being Autocrat with Tees and Felch crosses, the latter through the Felch hen purchased of Mr. Buzzell.

At this time, or soon after, Mr. Plaisted also purchased of Mr. Williams two other brothers of Colossus, making three sires begotten by the son of Old Autocrat, spoken of as sent by Mr. Williams to Mr. Estes, and out of pullets by Old Autocrat out of the Phillips hens first sent to Mr. Estes by Mr. Williams. He also purchased of Mr. Williams a pen of six hens and one cock, known as his Favorite strain (see in history of Autocrat), and a pen of six hens and one cock, one-half Autocrat and one-half Favorite blood, buying, as he termed it, families for breeding pens, which, as may be seen, makes the weight of blood in the Plaisted stock Autocrat, if we are to accept the pedigrees as printed, and the above facts.

DUKE OF YORK

Mr. Comey's Duke of York was a grandson of Old Autocrat in a double sense, for both his sire and dam were the progeny of Old Autocrat out of the Phillips hens, bred by Mr. Estes. The Phillips hens, as we have

described above, were in foundation-blood the same as the stock sent to the Queen by Mr. Burnham. The Duke of York was a vigorous bird, and lived to be bred to his own progeny, and also to the Philadelphia hens purchased of Chas. Tees by Mr. Comey; and to this mating we believe should be given the credit of bringing out in its best form the breeding qualities of the Duke, for sons by the Duke out of his daughter, mated with the pullets by him out of the Philadelphia hens, proved excellent birds; but the first cross with the Philadelphia hen developed poor combs, as did the Philadelphia stock with the Felch.

It may be asked by the friends of Philadelphia stock, where the progeny of Colossus got their faulty combs? We will say, just where the Tees stock got it,—from the Rankin. The blood was there, and large birds could not be forced without its development.

Mr. Comey made crosses of the Rankin strain, which, as he informs us, he abandoned, as it with the York blood developed nothing desirable but size. Since 1869 Mr. Comey has confined himself principally to different Autocrat crosses, as can be seen in the Duke of Norfolk, Duke of Springfield, etc., descendants of Colossus, Apollo, and Triumph. He has adhered more closely to in-breeding than

most other friends of the strain. The Light Brahmas known as the

BUZZELL STOCK

had in foundation-blood the Chamberlin strain, more generally known as the Felch strain up to 1869, when Mr. Buzzell commenced to use top crosses of Philadelphia, also Philadelphia and Autocrat sires in the way of son of Duke of York, Colossus, and others; he also introduced, in 1869, females from the Felch strain by Honest Abe 307. Mr. Buzzell has not confined himself to any one line, and his stock must be spoken of in general terms as Autocrat, Philadelphia, and Felch blood, the first-named probably predominating.

In closing our remarks upon the blood of Autocrat, we will say that, so far as they allude to Mr. Williams, they were submitted to him, and after examination by that gentleman we received the following :—

MR. FELCH :—

I have your manuscript, and have carefully read it. I cannot see that you have made any mistakes, or said anything that is not true; neither could I add anything that would make the history more complete. Wishing you success, I am,

Yours truly,

P. WILLIAMS.

**THE CHAMBERLIN STRAIN, NOW SO WIDELY KNOWN AS
THE "FELCH STRAIN."**

(See group of Brahmas opposite page 74.)

This strain is well known as coming from the birds that were found by Mr. Knox in the India ship in New York City in 1847. The first to breed these birds were Mr. Chamberlin and Mr. Cornish of Connecticut, and Mr. Smith and Mr. Childs of Rhode Island, the last-named individual winning the Albany and Barnum exhibitions of New York. The strain was in but very few hands up to 1852, at which time at Boston, it created the sensation which gave to the breed an identity and a name. For several years it went by the name of Brahmas or Short-legged Chittagongs, the breeders clinging to the then good reputation of the Chittagong. But from 1857 to 1865 we see the Chittagong conceding the palm to the Brahma, by returning the compliment and being exhibited as single-combed Brahmas; and finally, in 1865 we find them discarded altogether as a race—the edict that all Brahmas should have a pea-comb sending them into oblivion.

This Chamberlin strain from its advent has bred, as a rule, pea-combs and orange-yellow legs. The early

specimens being creamy-white, and the prevailing undercolor bluish-white, it has been a struggle to keep this bluish undercolor, for all strains grow lighter, and at the present writing, with all the care to retain it, one half the specimens will come white in undercolor. To secure fine neck-hackles and dark tails and wings, this bluish-white undercolor is absolutely necessary; and in introducing new blood into a strain one can see how important it is that a dark specimen be chosen.

From the original birds bred by Mr. Chamberlin came the cock Imperial 300 (the male that has been facetiously mentioned as the bird Mr. Felch bought for a dollar or two, out of a hen-cart), the founder of the well-known Felch strain of Light Brahmas.

The female to which Imperial 300 was mated, came from eggs purchased of Mr. Childs (alluded to above), and were from Virgil Cornish, being in blood the same, and the name of Chamberlin strain would be far more appropriate as indicative of its origin; but as the breeding-world have seen fit, in their generosity, to know the strain by the name of the writer of this work, he can only accept the situation.

The writer is well aware that but for his love for the breed during the lull in the chicken fancy, from

1855 to 1864, when nearly all the fanciers allowed their fowls to run out, so to speak, and accidental good luck in the way of an egg laid by Old Princess out of which Honest Abe 307 was hatched, he too would have lost his interest, and with it would have been lost the pedigree and proof of blood that has preserved the identity of the strain.

The writer would prefer that the strain should be known by the name of its original founder rather than to have it as it is ; for he is now made responsible for the breeding of the strain, it matters not who mates them, nor how far they are removed from his breeding ; for then he could stand or fall on his own merits as a breeder, and his reputation would only be affected by the specimens bred by him and sold by himself. In speaking of the management of the strain, we will do so in the first person, submitting the following : —

Since the purchase of Imperial 300 and the egg out of which I produced the hen Lady Childs, I have kept a true record of blood and breeding of all the families of the strain which I have bred. This discloses all the introductions of new blood, and from what source it has come. These introductions of new blood have been made on the principle that all animal

life is suffering a continual waste, and is in as constant need of blood-food in a reproductive sense, as it is of daily food to supply the waste in the individual, and experience teaches that no strain can be sustained without this supply.

The blood used to vitalize the strain in my hands has been : First the blood of the old Nanturier hen, as seen in the use of Dutchess, in 1858, being used as stock in my pedigree fowls in the hen Princess 362, which was one-eighth Nanturier blood.

The next cross was Lady Mills 364, she being three-fourths Chamberlin and one-fourth Burnham blood, her one-fourth foreign blood being derived from the then so-called Chittagong or Gray Shanghai, from the Burnham Queen strain. Since 1865 all new blood has been drawn from the Autocrat strain, as seen in the following birds (see my pedigrees, in the *World's Pedigree Book*) :—

Autocrat Belle, 392 ; Eaton Belle, 407 ; Lady Ipswich, 1022 ; and Maud Williams, 4146 ; and the cocks Experiment, 337 ; and Ned Williams, 4145, a brother to Duke of Springfield.

The crosses from the Philadelphia birds being Chicago Belle, 382 ; Mrs. Strout, 404 ; and the cockerel fourth-prize cock of New York, 1868.

By the tracing of these pedigrees it will be seen just how much blood other than the Chamberlin (the original blood) is now represented in the Felch birds, or strain now bred by me. I will speak of some of the characteristics developed by these crosses.

While it was asserted, at the 1852 exhibition, at Boston, *that this was* a breed that would never run out, and although there has never been a breed so severely in-bred, yet all this introduction of blood was necessary to preserve the original type and color ; for if continually in-bred a loss of constitution, a change of type, and a reversion to white in color would have followed, while the third in-breeding of new blood to a strain will invariably result in fine specimens.

In the early crosses of Autocrat blood with the Felch, the progeny was invariably too dark in plumage ; and although oftentimes developing new types, the first in-breeding would restore three fourths of the progeny, while a portion of the males would revert to light color, as in the case of Moses 327. The third in-breeding to the strain was necessary to a full restoration to the Felch type and color. (For my reason for that, see notes in history of Old Autocrat.)

The cross of Experiment 347 (Autocrat) with Columbia 386 (Felch), produced chicks of the same character, which took two in-breedings to restore.

The cross of Son of Colossus (Autocrat) to Henelope 1019 (Felch) presented the same feature ; but the third in-breeding to the strain produced birds scaling 92 to 94 points, and many won first prizes. I think that had Old Autocrat lived to have been bred to his own progeny, his blood, so highly prized by breeders of other strains as new blood, would have been discarded. As it is, I presume Mr. Williams and myself have oftentimes been censured, or at least the stock has been, for this very virtue,—strength of breeding,—by those striving to cross the strains, and many a good bird abandoned, which, had it been bred back to either strain would have developed fine stock.

The early crosses of the Philadelphia birds with the Felch invariably produced lopped combs, and many that maintained their upright position had the middle division much too high. This and the development of the greenish-blue vein on the leg show clearly the India cross in the blood of the Philadelphia birds.

The color was easily controlled, and although there was seemingly no difference in the size, yet the pro-

geny were much larger in the first cross, and were longer in arriving at maturity. Chicago Belle 382 weighed twelve pounds at twelve months old. This cross as developed in Prince 321 by Honest Abe 307, proved a very desirable one as can be proved by H. S. Ball, T. L. Sturtevant, and Mark Pitman, all of whom used him in breeding. Again Tees Duke (Philadelphia blood) bred to Lady Fay (Felch) by a son of Honest Abe 307, produced the sire and dam of the two hens known as the Sturtevant hens, each weighing thirteen and one fourth pounds, which were never exhibited without winning a prize. Their sire and dam were not large, as Mr. Strout, of Framingham, Mass., their breeder, can testify.

The fourth-prize cock of New York for 1868 was one half Philadelphia, one fourth Felch, and one fourth the blood of fowls bred by Mr. Pool of New York. This cock bred to Felch pullets, daughters of Honest Abe 307, produced Lady Rice 405, out of which, by a son of Honest Abe 307 (Optimus 315), was bred Cœur de Lion 326, one of the best Light Brahma cocks ever bred in America, and the sire of many prize-chicks, among which was Poqonnuck 999, Ben Lidi 2777, Cœur de Leon 6th, Leo 2776, and others, selling from 25 to \$100 each, pro-

ducing \$1425 worth of chicks in a single season. All these crosses of Philadelphia blood were controlled in color, which leads me to consider the top crosses of the Philadelphia birds to be Chamberlin blood, or that of a kindred nature. I speak of these crosses to show how dependent the breeder of one strain is upon those breeding another, and that whenever new blood is taken into any strain of well-bred birds, when it is reduced by in-breeding to that quantity which will soon be consumed by the strain, that the best results are reached. This constant feeding of the blood is necessary, and without it no strain can long survive. By one systematic rule we can keep repeating results year after year.

Science tells us that we are changing constantly; the waste in our blood is renewed by new blood, yet the blood in breeding type is the same. So is it with strains. The new blood by in-breeding becomes the weaker and the prey of the original blood that consumes it, constantly invigorating the original and not changing it in the least in type and color.

The stock known as the "Sturtevant birds" were in the main Felch blood, and after the first year's breeding remained three fourths Honest Abe blood and one fourth that of the fourth-prize cock of New

York in 1868 ; the former being Felch, the latter one-half Philadelphia, one-fourth Felch, and one-fourth Pool blood. Cœur de Leon 326 was bred by T. L. Sturtevant, thirteen-sixteenths Felch blood, and as I have said, was one of the best birds ever bred in America. Mr. Sturtevant did not appreciate him, always supposing his best birds came from a bird which has many times won the Boston exhibitions. That Mr. Sturtevant was honest in his belief is apparent in the fact that he loaned Cœur de Leon to H. F. Felch for the season of 1874, with the results previously described.

The cross of the Philadelphia blood with the Felch, as developed in the breeding through Prince 321 and Cœur de Leon 326 in the yard of Thos. L. Sturtevant, and later in the mating of Cœur de Leon 326 with Parepa 395 by Moses 327, by H. F. Felch in 1874, was no doubt the best coupling of two strains ever made. Had Mr. Sturtevant's zeal for poultry culture been as lasting as it was fervent at times, he would have led the van. But his greater love for his dog and gun, and the pressure of business, have led him to abandon the breeding of poultry for the present.

To review the subject of strains, we come to this

fact : that there are but very few strains and very few marked specimens from which originality of type has been established ; and when we indulge in top crosses we destroy the strain, unless we resort to in-breeding to secure the benefit of the cross, and to ensure the type of the strain.

We find also that all the strains or sub-divisions of strains were, in their origin, dark in undercolor, and that with age they grow lighter, and if left to themselves they may lose their original type, change being written on all ; and only by persistent effort can these original types be retained. We should feel that as long as we deliver up into other hands these strains as good as we receive them, we have been equal to the task of breeding them, and should be considered breeders ; and that if we can improve a breed, surely we deserve praise. I am one of the few that say there are no better specimens exhibited to-day than were exhibited years ago. But I do believe the general average is far better. The excellence of the few is controlled by a fixed law, viz : The eternal fitness of things, which says "Thus far canst thou go, O man, and no farther." We are not endowed with the infinite, and our matings are sometimes blunders.

If in this little work I shall have caused but one

to breed with care and thought as regards the correct principles of breeding, instead of a hap-hazard sort of way, settling all these questions by personal examinations, acting on the principle of working by no rule that does not have the endorsement of sound judgment, then I shall not regret the labor it has cost.

FINIS.

APPENDIX.

TO OUR PATRONS AND FRIENDS.

Now, as the last pages of this work go to press, so generous has been the support of our friends, that we are enabled to say that nearly the whole edition has been ordered, and will be quite exhausted by the time it can be distributed; and we are led to thank those who have lent their support.

First, to those who have advertised with us, thereby assisting us in a substantial manner: being grateful for their favors, we take pleasure in calling the attention of our readers to them, knowing, as we do, that they are honorable men; and we can fully endorse them, for they will deal fairly with their patrons.

To Messrs. P. Williams, Joseph M. Wade, George Butters, C. A. Keefer, and James M. Lambing, for the cuts furnished us, which we deem the best of the many now in use; and if they are the portraits of these gentlemen's breeding stock, no more need be said in their praise.

To E. C. Comey and Joseph M. Wade, for information which enabled the writer to present the subject-matter upon strains of Light Brahmas in its present relations.

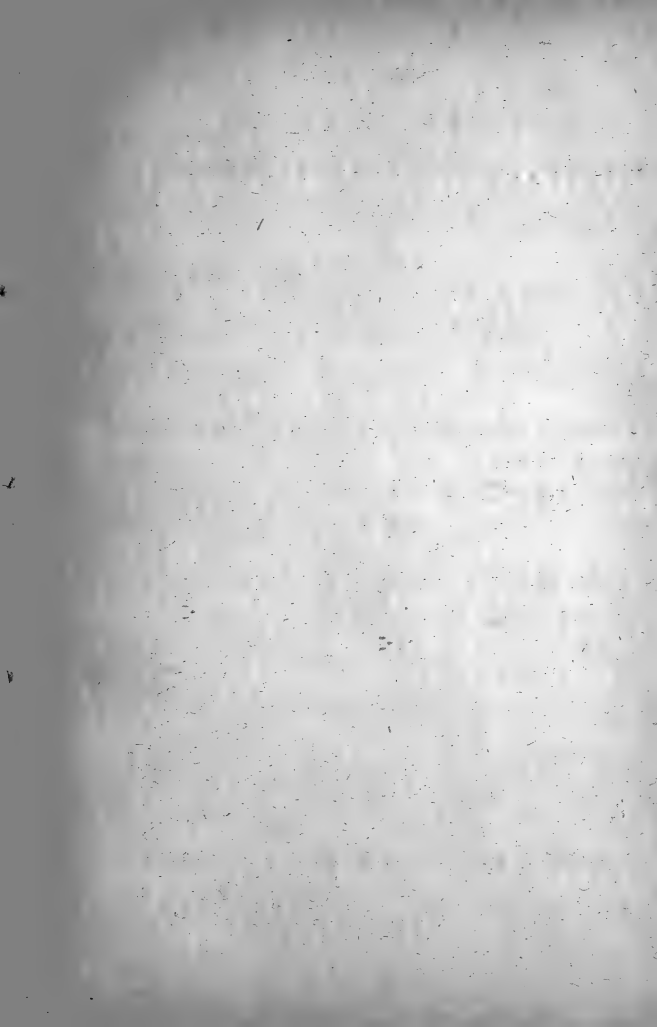
To the Poultry Journals, for generous courtesies extended to us.

And last, but not least, to James F. Mooar, and Edwin DeMeritte for personal favors received at their hands.

To each and all of these, and to the generous public and fraternity of Poultry Breeders, who have come forward with their support, we return our thanks, hoping that the present pleasant relations may ever exist.

I. K. FELCH.

NATICK, MASS.,
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